

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An image processing device to multiply a two-dimensional pixel data by a matrix of coefficients and filter said pixel data based on a sum of the multiplied results, said image processing device comprising:

a memory unit array in which a plurality of memory units in a form of matrix are arranged which at least includes a first memory cell to store said pixel data, a second memory cell and a third memory cell ~~to store said pixel data~~;

a first calculator arranged in rows of, and in the number of columns of, said memory unit array to perform computation ~~of~~ using the pixel data of a specified column stored in said first memory cell in the memory units of a same column and in a plurality of rows in the memory unit array and obtain a first processing data to store in said second memory cell in one memory unit among the memory units of the same column and in the plurality of rows; and

a second calculator arranged in columns of, and in the number of rows of, the memory unit array to perform computation ~~of~~ using the first processing data of a specified row stored in said second memory cell in the memory units of a same row and in a plurality of columns of in the memory unit array and obtain a second processing data to store in said third memory cell in one memory unit among the memory units of the same row and in the plurality of columns; and

wherein said filtering is performed based on a computed result by the second calculator.

2. (Currently Amended) The image processing device according to claim 1, wherein said first processing data is stored in said second memory cell in a memory unit located in a middle row among said memory units ~~in the specified column~~ the plurality of rows, and said

second processing data is stored in said third memory cell in a memory unit in a middle column among said memory units ~~in the specified row~~ the plurality of columns.

3. (Currently Amended) An image processing method, in an image processing device which comprises:

a memory unit array in which a plurality of memory units in a form of matrix ~~to store pixel data~~ are arranged which includes a first memory cell to store a pixel data, a second memory cell and a third memory cell in the form of matrix;

a first calculator arranged in rows of, and in the number of columns of, the memory unit array; and

a second calculator arranged in columns of, and in the number of rows of, the memory unit array; said image processing method comprising:

a first step to obtain a first processing data by performing computation at said first calculator ~~of using said pixel data in a specified column~~ stored in said first memory cell in the memory units of a same column and in a plurality of rows of ~~in the memory unit array to obtain a first processing data~~, and store the first processing data in a said second memory cell ~~which is independent from a first memory cell which stores the pixel data in the memory units in one memory unit among the memory units of the same column and in the plurality of rows~~; and

a second step to obtain a second processing data by performing computation at said second calculator ~~of using said first processing data in a specified row~~ stored in said second memory cell in the memory units of a same row and in a plurality of columns in the memory unit array, and store the second processing data in a said third memory cell ~~in the memory units in one memory unit among the memory units or the same row and in the plurality of columns~~.

4. (Currently Amended) The image processing method according to claim 3, wherein said first processing data is stored in said second memory cell the memory unit in the middle row among said memory units in ~~the specified column~~ the plurality of rows, and said second processing data is stored in said third memory cell the memory unit in the middle column among said memory units in ~~the specified row~~ the plurality columns.

5. (Original) The image processing method according to claim 3, wherein computation in said first step is performed by shifting along rows, and subsequently, computation in said second step is performed by shifting along columns.

6. (Original) The image processing method according to claim 4, wherein computation in the first step is performed by shifting along rows, and subsequently, computation in the second step is performed by shifting along columns.

7. (Original) The image processing method according to claim 3, wherein computation in the second step is performed by shifting along columns, and subsequently, computation in the first step is performed by shifting along rows.

8. (Original) The image processing method according to claim 4, wherein computation in the second step is performed by shifting along columns, and subsequently, computation in the first step is performed by shifting along rows.